REMARKS

In view of the preceding amendments and the following remarks, the Applicants respectfully request reconsideration of the present application.

Objections and Rejections

The Office Action dated July 16, 2008:

1. objects to the title for being **too non-descriptive** without identifying anything in the title which makes it **too non-descriptive**;

2. objects to the abstract of the disclosure and requires correction according to Manual of Patent Examining Procedure ("MPEP") § 608.01 (b);

3. rejects pending claims 2, 5, 11, 14, 21 and 24 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention;

4. rejects pending claims 1-27 on the grounds of nonstatutory obviousness-type double patenting over United States Patent No. 6,122,239 entitled "Pre-mastering, Archival Optical Recorder That Provides Extended Recording Time" which issued September 19, 2000, on an application filed

by Martin J. Bodo, Robert A. Rosenbloom, and Igor Lokhmotov ("the Bodo, et al. patent");

5. rejects pending claims 1, 2-3, 6-8, 10-12 and 23 under 35 U.S.C. § 102(b) as being anticipated by United States Patent no. 5,247,738 entitled "Modular Digital Voice Processing System" that issued on December 28, 1993, for a patent application filed in the names Daniel F. Daly, John J. Dwyer, Mark N. Harris, Salvatore J. Morlando, Thomas C. Grandy, Mark Sekas, Shamla V. Sharma and Jy-Hong Su of ("the Daly, et al. patent");

6. rejects pending claims 4 and 13 under 35 U.S.C. § 103(a) as being unpatentably obvious over the Daly, et al. patent;

7. rejects pending claims 15-22 and 24-27 under 35 U.S.C. § 103(a) as being unpatentably obvious over:

   a.   the Daly, et al. patent; in view of

   b.   the Bodo, et al. patent;

8. rejects pending claims 5 and 14 under 35 U.S.C. § 103(a) as being unpatentably obvious over:

   a.   the Daly, et al. patent; in view of

   b.   United States Patent No. 6,473,438 entitled "Method and Apparatus for Coordinating Multi-Point To-Point Communications in a Multi-tone Data Transmission

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System" which issued October 29, 2002, on an application filed by John M. Cioffi, John Bingham and Krista S. Jacobsen ("the Cioffi, et al. patent"); and

9. rejects pending claim 9 under 35 U.S.C. § 103(a) as being unpatentably obvious over:

a. the Daly, et al. patent; in view of

b. United States Patent No. 5,526,406 entitled "Calling Party Announcement Apparatus" which issued June 11, 1996, on an application filed by David J. Luneau ("the Luneau patent").

Description of Amendments

Applicants request amendment of the specification on page 30 as set forth above to correct a grammatical error.

Applicants request amendment of claims 1 and 20 as set forth above to eliminate any possibility that those claims might have a double inclusion of the "USB root hub" claim element.

Applicants request amendment of independent apparatus claim 19 as set forth above to insert the indefinite article "an" before the phrase "audio telecommunication signal for at least one telephone call."

Applicants request amendment of method step a. in independent claim 23 as set forth above to conform that claim's text more closely with that of independent apparatus claim 19.

Applicants request amendment of the abstract of the disclosure as set forth above to traverse an objection thereto appearing in the July 16th Office Action.

The Claimed Inventions

The present patent application discloses and claims various aspects of a multi-channel digital logger system which, in comparison with conventional prior art digital loggers that are characterized in the pending patent application on pages 29 and 30,[1] possesses qualities of being:

1. lower-cost;

2. simpler;

3. more cost-effective;

4. simpler to manufacture;

5. easier to configure; and

6. economical to manufacture.

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[1] Applicants note that the characterization of the prior art digital loggers appearing on pages 29 and 30 of the present patent application applies to the digital voice processing system 10 disclosed Daly, et al. patent, i.e. includes the digital voice processing system 10 of the primary reference cited in the July 16th Office Action.

Pending independent apparatus claims 1, 10 and 19, that exhibit all six (6) of the preceding qualities, respectively encompass a "digital logger system," a "signal processor adapted for use with a [personal computer ("PC")]" and a "digital logger system."

Pending independent claims 1 and 10, together with claims 2-9 and 11-18 respectively depending therefrom, distinguish the conventional prior art digital loggers of the type characterized in the pending patent application on pages 29 and 30 by:

1.   including a Universal Serial Bus ("USB") hub through which digital audio data for received telephone calls passes; and

2.   decoding within the PC line status and signaling information to determine a telephone line's status including "going off hook."

Pending independent apparatus claim 19, together with claims 21 and 22 depending therefrom, distinguish the conventional prior art digital loggers of the type characterized in the pending patent application on pages 29 and 30 by including:

1.   a CODEC that produces linearly coded digital audio data for received telephone calls: and

2.   software executed by the PC both for:

a.   detecting a telephone line's status including "going off hook;" and

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     b.   converting linearly coded digital audio data into μLaw compressed digital audio data.

Independent method claim 23 encompass operation of the "digital logger system" similar to that of independent apparatus claim 19. Dependent claims 24-27 that depend from independent claim 23, encompass particular aspects of the operation of a "digital logger system" that respectively appear in independent apparatus claims 1 and 10, and dependent apparatus claims 6-8 and 16-18.

The following table compares parts costs for a signal processor adapted for use with a PC in accordance with independent claim 10 with that for conventional prior art digital loggers of the type characterized in the pending patent application on pages 29 and 30.

Year	Conventional Prior Art Digital Loggers Characterized On Pages 29 And 30	Cost-Effective Multichannel Digital Logger

2004	μ-law CODEC
	    National Semi
	    TP3054 $ 3.41
	FIFO approximately $15.00
	Clock generator for
	    telecom chip $ 2.70
	
	PLX PCI Interface chip
	    PCI9030 $24.80
	
	Xilinx deserializa-
	tion IC to interface
	between USB chip and
	CODEC $ 2.00
	
	Telephone line
	interface
	(transformer,
	capacitor, etc).
	    approximately $ 3.00
	
	Single Channel Total $50.91
	
	Four Channel Total $203.64
		Two channel[2] linear
		CODEC
		    TI PCM2904 $ 5.31
		
		    per channel
		    cost $ 2.66
		
		USB Hub[3]
		    TI TUSB2046 $ 2.21
		
		    per channel
		    cost $ .55
		
		Telephone line
		interface
		(transformer,
		capacitor, etc).
		    approximately $ 3.00
		
		Single Channel Total $ 6.21
		
		Four Channel Total $ 24.84
		
		12.19% the cost of
		conventional prior
		art digital loggers

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[2]   A linear stereo CODEC provides two (2) CODEC channels respectively for right and left channels of stereo sound. A single telephone line requires only one channel of the linear stereo CODEC.

[3]   As illustrated in FIG. 2 of the pending patent application, a single USB Hub IC supports four (4) USB CODECs, i.e. two (2) linear stereo CODECs.

2008	μ-law CODEC
	    National Semi
	    TP3054 $ 3.41
	FIFO approximately $15.00
	Clock generator for
	    telecom chip $ 2.70
	
	PLX PCI Interface chip
	    PCI9030 $19.89
	
	Xilinx deserializa-
	tion IC to interface
	between USB chip and
	CODEC $ 2.00
	
	Telephone line
	interface
	(transformer,
	capacitor, etc).
	    approximately $ 3.00
	
	Single Channel Total $46.00
	
	Four Channel Total $184.00
		Two channel linear
		CODEC
		    TI PCM2904 $ 5.18
		
		    per channel
		    cost $ 2.59
		
		USB Hub
		    TI TUSB2046 $ 1.63
		
		    per channel
		    cost $ .41
		
		Telephone line
		interface
		(transformer,
		capacitor, etc).
		    approximately $ 3.00
		
		Single Channel Total $ 6.00
		
		Four Channel Total $ 24.00
		
		13.04% the cost of
		conventional prior
		art digital loggers

Surely a significant parts cost reduction that exceeds 85% cannot be ignored, and fully support's this patent application's allegedly "**too nondescriptive**" title of a "Cost-Effective Multichannel Digital Logger."

Argument

Applicants respectfully submit that for the reasons set forth in greater detail below:

1. the patent application's title traverses the objection thereto appearing in the July 16th Office Action;

2. the patent application's abstract of the disclosure as amended above traverses the objection thereto appearing in the July 16th Office Action; and

3. pending claims 1-27 traverse all bases for rejection appearing in the July 16th Office Action.

Objection To Patent Application's Title

37 C.F.R. § 1.72(a), reproduced below, specifies only that a patent application's title:

1. may not exceed 500 characters in length;

2. must be as short and specific as possible; and

3. should appear as a heading on the first page of the specification unless a title is supplied in an application data sheet.

37 C.F.R. § 1.72(a) The title of the invention **may not exceed 500 characters in length** and **must be as short and specific as possible**. Characters that cannot be captured and recorded in the Office's automated information systems may not be reflected in the Office's records in such systems or in documents created by the Office. **Unless the title is supplied in an application data sheet**

(§ 1.76), <u>the title of the invention should appear as a heading on the first page of the specification</u>. (Emphasis supplied.)

The MPEP § 606 provides the following guidance about a patent application's title.

> The title of the invention should be placed at the top of the first page of the specification unless it is provided in the application data sheet (see 37 CFR 1.76). The title should be brief but technically accurate and descriptive and should contain fewer than 500 characters. Inasmuch as the words "new," "improved," "improvement of," and "improvement in" are not considered as part of the title of an invention, these words should not be included at the beginning of the title of the invention and will be deleted when the Office enters the title into the Office's computer records, and when any patent issues. Similarly, the articles "a," "an," and "the" should not be included as the first words of the title of the invention and will be deleted when the Office enters the title into the Office's computer records, and when any patent issues.

<u>Applicants respectfully submit that</u>, in view both of the requirements for a patent application's title established by 37 C.F.R. § 1.72(a) and of the guidance provided by MPEP § 606, <u>the title of this patent application as originally filed traverses the objection appearing in the July 16, 2008, Office Action</u>. <u>Specifically regarding the issue of descriptiveness of the patent application's title</u>, <u>Applicants specifically notes that the parts cost data set forth above</u>, which compares, when this patent application was filed and now, costs for the parts included in a the conventional prior art digital logger of the type characterized in the pending patent application on pages 29 and 30 versus a

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digital logger constructed in accordance with this patent application's disclosure. **An 85% parts cost reduction clearly demonstrates that the patent application's title, as originally filed, truly describes the disclosed invention**.

Objection To Abstract
Of The Disclosure

37 C.F.R. § 1.72(b), reproduced below, specifies only that a patent application's abstract of the disclosure:

1. must commence on a separate sheet, preferably following the claims;

2. under the heading "Abstract" or "Abstract of the Disclosure;"

3. a sheet or sheets presenting the abstract may not include other parts of the application or other material; and

4. the abstract in an application filed under 35 U.S.C. § 111 may not exceed 150 words in length.

37 C.F.R. § 1.72(b) A brief abstract of the technical disclosure in the specification **must commence on a separate sheet, preferably following the claims, under the heading "Abstract" or "Abstract of the Disclosure."** The **sheet or sheets presenting the abstract may not include other parts of the application or other material**. The abstract in an application filed under 35 U.S.C. 111 may not exceed 150 words in length. The purpose of the abstract is to enable the United States Patent and Trademark Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure. (Emphasis supplied.)

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Applicants respectfully submit that the abstract of the disclosure, as amended above and as accompanying this Response on a separate sheet, fully complies with all requirements of 37 C.F.R. § 1.72(b).

Claims 2, 5, 11, 14, 21 And 24
Traverse Rejection Under
35 U.S.C. § 112, Second Paragraph

The July 16th Office Action rejects claims 2, 5, 11, 14, 21 and 24 under 35 U.S.C. § 112, second paragraph, alleging as follows.

> The mentioned claims recites "electronically condition-ing" without definition of what the "electronically conditioning" means. The Specification does indicate "electronically conditioning"[4]. It lacks clear defini-tion of the claimed terminology. For the purpose of continued examination, **examiner interprets it provision-ing, forming, pre-setting, setting-up or massaging the signal into an acceptable format**. (Emphasis supplied.)

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[4]   Applicants are unable to reconcile this sentence as it appears in the July 16th Office Action with:
1.   the rejection of claims 2, 5, 11, 14, 21 and 24 under 35 U.S.C. § 112, second paragraph;
2.   the first sentence of the excerpted text; and
3.   the last sentence of the excerpted text.
If the "[t]he Specification does indicate 'electronically conditioning,'" then the July 16th Office Action neces-sarily admits that claims 2, 5, 11, 14, 21 and 24 traverse rejection under 35 U.S.C. § 112, second para-graph. Consequently, in responding to the rejection of claims 2, 5, 11, 14, 21 and 24 under 35 U.S.C. § 112, second paragraph, Applicants conclude that it was intended that this sentence should read "[t]he Specifica-tion does **[not]** indicate 'electronically conditioning.'"

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Applicants first observe that this claim rejection appears to rely upon an erroneous premise. Specifically, beginning on page 36 in line 17 the patent application's text excerpted below describes "electronically conditioning . . . received audio telecommunication signals," and depicts a received audio telecommunication signals electronic conditioning circuit in FIG. 5.

> **Each line interface respectively receives and electronically conditions an analog audio communication signal from one of the outside-analog-trunk receptacles 32.** Each line interface includes a series connected capacitor 44 and first winding of a transformer 46 that are connected in series across the outside-analog-trunk receptacle 32. A second winding of the transformer 46 connects to a surge protection circuit which includes a capacitor 52 that connects across the second winding to circuit ground in parallel with two oppositely oriented, series connected, pairs of 1N4007 diodes 54. The capacitively coupled transformer 46 and the surge protection circuit provides AC line coupling which is compatible with both "wet" and "dry" telephone trunk lines. This configuration for the transformer 46 and the surge protection circuit allows each multichannel interface circuit 42 to continuously and passively monitor a pair of telephone trunk lines without "going off hook," i.e. without presenting low impedance to either telephone trunk line connected respectively to the outside-analog-trunk receptacles 32. (Emphasis supplied.)

Concerning the examiner's arbitrarily chosen interpretation of the phrase "electronically conditioning . . . received audio telecommunication signals" appearing at the end of the preceding excerpt from the July 16th Office Action, Applicants observe that unfortunately the Office Action's interpretation departs markedly from a definition for that phrase which appears in the USPTO's U.S.

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Patent Classification ("USPC") System. **The USPC System includes**
class 379, for issued United States patents related to "Telephonic
Communications." Furthermore, class 379 includes a subclass 414 to
which are assigned one-hundred and ten (110) issued United States
patents concerning the subject of "Transmission Line Conditioning."
Accordingly, Applicants respectfully submit that:

1. the interpretation of the term "electronically condition-
   ing" as applied to "received audio telecommunication
   signals" appearing in pending claims 2, 5, 11, 14, 21 and
   24 should be one which conforms to the interpretation of
   that phrase which appears in the USPC System for class
   and subclass 379/414, and not some arbitrarily concocted
   ad hoc interpretation; and

2. the fact that the USPC System class and subclass 379/414
   identifies no fewer than one-hundred and ten (110)
   respectively disclosing "electronically conditioning"
   "telephonic communication" signals ensures that there
   exists a more than adequate body of publicly available
   knowledge which proves that claims 2, 5, 11, 14, 21 and
   24 do, in fact, particularly point out and distinctly
   claim the subject matter which Applicants regards as
   their invention.

For both of the preceding reasons, Applicants respectfully request that the rejection of claims 2, 5, 11, 14, 21 and 24 under 35 U.S.C. § 112, second paragraph, be withdrawn.

Claims 1-27 Traverse
Double Patenting Rejection

The July 16th Office Action also rejects claims 1-27 for nonstatutory obviousness-type double patenting with respect to the Bodo, et al. patent. In rejecting claims 1-27 for nonstatutory obviousness-type double patenting the July 16th Office Action makes the following allegation.

> Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-27 of the present invention are similar in scope to claims 1-22 of US Pat# 6,122,239 with **obvious wording variations**. (Emphasis supplied.)

Following the preceding conclusory allegation on pages 4-6 in the July 16th Office Action is a table that, superficially, appears to compare the texts of this patent application's pending claims with texts excerpted from the Bodo, et al. patent.

Claims 1-18

Regarding pending independent apparatus claims 1 and 10, the July 16th Office Action excerpting texts from claim 1 of the Bodo, et al. patent alleges on page 5, in part, a concurrences between claim elements as follows.

Pending Independent Claims 1 and 10	The Bodo, et al. Patent's Independent Claim 1
a Universal Serial Bus ("USB") hub for receiving the digital audio data continuously transmitted from the multichannel interface circuit, and for transmitting the digital audio data to a USB root hub	an optical-disk recorder that is coupled to said RAM and that is adapted for recording pre-mastered digital data onto optical recording media; and

Applicants acknowledge that the USB hub element of both pending independent claim 1 and pending independent claim 10 receives digital data. However, **Applicants respectfully submit that what the optical-disk recorder included in independent claim 1 of the Bodo, et al. patent does with the received digital data differs completely from is totally unrelated to that which pending independent claims 1's and 10's USB hub does with received digital data.**[5] The "optical-disk recorder" of the Bodo, et al. patent's claim 1 "is adapted for recording pre-mastered digital data onto optical recording media." The USB hub of pending independent claims 1 and 10 is, in pertinent part, "for transmitting the digital audio data to a USB root hub." Applicants respectfully submit that "recording pre-mastered digital data onto optical recording media" fails to disclose or to even suggest "transmitting the digital audio data to a USB root hub." Therefore, pending

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[5] See Exhibit A attached hereto for a description of a USB hub as retrieved from Wikipedia.

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independent claims 1's and 10's USB hub performs a function neither encompassed by or even suggested by any of the Bodo, et al. patent's claims.

Since claims of the Bodo, et al. patent fail to encompass or even suggest at least a USB hub "for transmitting the digital audio data to a USB root hub" as expressly required by the texts of pending independent claims 1 and 10,[6] the subject matter of pending independent apparatus claims 1 and 10 is patentably distinct from the subject matter of the Bodo, et al. patent's claims. Accordingly, because at least for the preceding reason the subject matter encompassed by pending independent claims 1 and 10 is patentably distinct from the subject matter encompassed by claims of the Bodo, et al. patent, Applicants respectfully submit that claims 1 and 10 together with claims 2-9 and 11-18 respectively depending therefrom traverse rejection for nonstatutory obviousness-type double patenting with respect to the Bodo, et al. patent.

Claims 19-27

Regarding pending independent apparatus claim 19 and pending independent method claim 23, the July 16th Office Action at the bottom of page 4 and the top of page 5 identifies only two (2)

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[6] Applicants further note that nowhere does the Bodo, et al. patent disclose or even mention a USB hub.

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claim elements apparently arbitrarily selected from the entirety of those claims' texts, i.e.:

1. "[a] digital logger system adapted for receiving and recording audio telecommunication signals, the digital logger system comprising;" and

2. "a multichannel interface circuit adapted for concurrently and continuously receiving audio telecommunication signals for at least two telephone calls, and for continuously transmitting digital audio data extracted from the received audio telecommunication signals."

Considering initially only pending independent apparatus claim 19, the text of that claim lacks "a multichannel interface circuit" as characterized in the text excerpted above from the top of the July 16th Office Action's page 5.[7] Rather, independent apparatus claim 19 includes:

> an interface circuit that includes a CODEC, the interface circuit being adapted for receiving audio telecommunication signal for at least one telephone call, for converting the received audio telecommunication signal into linearly coded digital audio data, and for transmitting the linearly coded digital audio data extracted from the received audio telecommunication signal.

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[7]   Applicants find the claim text excerpted at the top of the July 16th Office Action's page 5 appears not in independent apparatus claim 19, but rather only in pending independent apparatus claims 1 and 10.

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Since in rejecting pending independent apparatus claim 19 for nonstatutory obviousness-type double patenting the table appearing on pages 4-6 of the July 16th Office Action fails to even consider that claim's text, Applicants respectfully submit that the Office Action lacks any evidence supporting claim 19's rejection for nonstatutory obviousness-type double patenting. That is, **Applicants respectfully submit that the July 16th Office Action fails to present a prima facie case for rejecting pending independent apparatus claim 19 for nonstatutory obviousness-type double patenting based upon any claim text appearing in the Bodo, et al. patent.** **Accordingly, since the July 16th Office Action fails to present a prima facie case for rejecting pending independent apparatus claim 19 for nonstatutory obviousness-type double patenting, Applicants respectfully submit that claim 19 together with claims 20-22 depending therefrom traverse rejection for nonstatutory obviousness-type double patenting with respect to the Bodo, et al. patent.**

Considering now only pending independent method claim 23, similar to pending independent apparatus claim 19 the text of claim 23 claim also lacks "a multichannel interface circuit" as characterized in the text excerpted above from the top of the July 16th Office Action's page 5. Furthermore, as one would anticipate for a method claim, the text of pending independent claim 23 even lacks

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the phrase "interface circuit." Considering the functionality of the "multichannel interface circuit" identified at the top of the July 16th Office Action's page 5, as amended above pending independent method claims 23's method steps a. and b. perform functions resembling those of the "multichannel interface circuit." Set forth below is a table comparing the functionalities encompassed by method steps a. and b. of pending independent claim 23 with a text excerpted from claim 1 of the Bodo, et al. patent that the July 16th Office Action identifies at the top of page 5.

Pending Independent Method Claim 23's functionality	The Bodo, et al. Patent's Independent Claim 1
a. concurrently and continuously receiving an audio telecommunication signal for at least one telephone call; b. converting the received audio telecommunication signal into linearly coded digital audio data;	an input-signal conditioning-circuit for electronically conditioning an analog signal received by an input-channel of the pre-mastering, optical recorder thereby producing a conditioned analog signal adapted for conversion into digital data;

Applicants respectfully submit that the "input-signal conditioning-circuit" identified at the top of the July 16th Office Action's page 5 fails to disclose or to even suggest pending independent claim 23's method steps a. and b. that require:

    1.   "receiving an audio telecommunication signal for at least one telephone call;" and

2.   "converting the received audio telecommunication signal

into linearly coded digital audio data."

Therefore, pending independent claim 23's method steps a. and b.

respectively perform functions that are neither encompassed by or

suggested by any of the Bodo, et al. patent's claims.

Since claims of the Bodo, et al. patent fails to encompass or

even suggest the subject matter of pending independent claim 23's

method steps a. and b., the subject matter encompassed by that

claim is patentably distinct from the subject matter encompassed by

claims of the Bodo, et al. patent. Accordingly, because for the

preceding reasons the subject matter encompassed by pending

independent claim 23 is patentably distinct from the subject matter

encompassed by claims of the Bodo, et al. patent, Applicants

respectfully submit that claim 23 together with claims 24-27

depending therefrom traverse rejection for nonstatutory obvious-

ness-type double patenting with respect to the Bodo, et al. patent.

Summarizing then, for the preceding reasons Applicants

respectfully submit that pending independent claims 1, 10, 19 and

23 traverse rejection for nonstatutory obviousness-type double

patenting with respect to the Bodo, et al. patent because claims of

the Bodo, et al. patent fails to encompass or even suggest at least

one element appearing in each of the pending independent claims.

Furthermore, because the Bodo, et al. patent fails to encompass or

even suggest at least one element appearing in each of pending

independent claims 1, 10, 19 and 23, pending claims 2-9, 11-18,

20-22 and 24-27, respectively depending either directly or

indirectly from pending independent claims 1, 10, 19 and 23, also

traverse rejection for nonstatutory obviousness-type double

patenting with respect to the Bodo, et al. patent.

The Cited Primary Reference

The Daly, et al. patent discloses a digital voice processing

system 10 illustrated in a block diagram of FIG. 1. The digital

voice processing system 10 includes a host computer 12, a voice

processing card 14, and a plurality of audio circuit boards 18a,

18b . . . 18n. As described in the Daly, et al. patent, the

voice processing system 10 operates as follows.

> A phone message will be transmitted from a telephone 22,
> and a signal will be received by the analogue interface
> 50 of one of the audio cards 18a, 18b-18n.
>   *   *   *
> The analogue interface 50 transforms incoming analogue
> signals to digital signals, balances the impedance of the
> telephone 20 system to that of the system 10, and
> optimizes signal integrity. **A digital signal will be
> sent [from the analogue interface 50] to the audio
> processor 48 which is a fast acting signal processing
> chip.** A signal will be sent through the TDM chip 46,
> onto the TDM bus 16 and will be subsequently received by
> the TDM chip 44 and a signal processor 36. **The signal
> processor 36a will receive the signal that a telephone 22
> is requesting service from an audio process 48. The
> signal will be sent to an application processor 38a. The
> response to the request for service will be controlled by
> the application processor 38a which will direct the**

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signal processor 36a to signal the audio processor to go off hook.

After the audio processor 48 is told to go off hook, communication is established with the telephone user and prompts would give instructions thereto. The user would then respond to the prompts by sending DMTF signals to the system 10 through use of the telephone keyboard.

Data is then received by a signal processor 36 where processing such as speech compression and expansion, call programming, automatic gain control, dual tone multi-frequency extraction, and voice activated operations takes place. The application processor 38 performs high level application such as dictation, transcription, voice mail, voice response, medical records, and the like. Each application processor 38a, 38b can run any of the different types of application processing and can run two applications of the same type simultaneously.

The data is then forwarded from the application processor 38 over the bus 32 to the bus interface 30 by way of the PCI chip 40a 40b and it is subsequently forwarded to the processor 24 informing it of the transaction so that the processor can control data traffic. Voice data is stored in a RAM 42a until the RAM's capacity is exceeded after which the data will be transmitted to the disk storage 26 for subsequent retrieval. The host processor 24 acts as a manager for voice data going into the disk storage 26 and will control specific operations of the system 10 such as systems diagnostics, voice file management and memory location assignments. (Col. 3, line 60 - col. 4, line 46) (Emphasis supplied.)

**Claims 1, 2-4, 6-8, 10-13 and
23 Traverse Rejection Under
35 U.S.C. § 102(b) and 103(a)**

The July 16th Office Action rejects claims 1, 2-3, 6-8, 10-12

and 23 under 35 U.S.C. § 102(b) as being anticipated by Daly, et

al. patent.

[F]or anticipation under 35 U.S.C. § 102, the reference
must teach **every aspect** of the claimed invention either

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explicitly or impliedly. Any feature not directly taught
must be inherently present. MPEP Eighth Edition, Rev 6,
Sept 2007, § 706.02 V., p. 700-23   (Emphasis supplied)

"Anticipation under 35 U.S.C. § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention." Rockwell International Corporation v. The United States, 147 F.3d 1358, 1363, 47 USPQ2d 1027, 1031 (Fed. Cir. 1998) citing National Presto Indus. v. West Bend Co., 76 F.3d 1184, 1189, 37 USPQ2d 1685, 1687 (Fed. Cir. 1966).   In determining anticipation under 35 U.S.C. § 102, functional language, preambles, and language in "whereby," "thereby," and "adapted to" clauses cannot be disregarded. Pac-Tec, Inc. v. Amerce Corp., 903 F.2d 796, 14 USPQ2d 1871 (Fed. Cir. 1990), cert. denied, 502 U.S. 808 (1991).

Claims 1, 2-4, 6-8, 10-13

Considering initially only pending independent apparatus claims 1 and 10, at the bottom of page 7 the July 16th Office Action alleges as follows.

> a Universal Serial Bus ("USB") hub (i.e., Bus Interface 30 coupling to bus 32 of fig. 1, col. 2, lines 31-33) for receiving the digital audio data continuously transmitted from the multichannel interface circuit, and for transmitting the digital audio data to a USB root hub;

At the top of page 8 the July 16th Office Action alleges as follows.

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a personal computer ("PC") **(i.e., host computer of fig. 1, col. 2, line 14)** having a USB root hub that is coupled to the USB hub **(i.e., Bus Interface 30 coupling to bus 32 of fig. 1, col. 2, line 31)** and which: receives the digital audio data transmitted from the USB hub **(i.e., The bus interface 30 provides communication between the processor 24 and the voice processing card 14 through a bus 32, col. 2, lines 31-33)**;

Applicants respectfully submit that the two (2) preceding allegations excerpted from the July 16th Office Action require that the Daly, et al. patent's bus interface 30:

1. be both:

    a. the USB hub; and

    b. the USB root hub; and

2. require the bus interface 30 to both:

    a. transmit digital audio data to a USB root hub, i.e. **transmit digital audio data to itself**; and

    b. receive digital audio data transmitted from the USB hub, i.e. **receive digital audio data from itself**.

Because it is physically impossible for the Daly, et al. patent's bus interface 30:

1. to be both:

    a. the USB hub; and

    b. the USB root hub; and

2. to both:

    a. transmit digital audio data to a USB root hub, i.e. **transmit digital audio data to itself**; and

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b.   receive digital audio data transmitted from the USB

hub, i.e. **receive digital audio data from itself**;

Applicants respectfully submit that pending independent apparatus

claims 1 and 10 traverse rejection under 35 U.S.C. § 102(b) as

being anticipated by Daly, et al. patent because the reference

fails to "teach **every aspect** of the claimed invention either

explicitly or impliedly."

In addition to requiring a USB hub, pending independent claims

1 and 10 further require a personal computer ("PC") having the USB

root hub that:

1.   receives digital audio data transmitted from the USB hub;
       and

2.   executes PC software that continuously monitors received
       digital audio data for decoding line status and signaling
       information embedded in digital audio data to determine
       status of a telephone line including a telephone line
       "going off hook."

The preceding excerpt from the top of page 8 of the July 16th

Office Action identifies a "host computer 12" depicted in FIG. 1 of

the Daly, et al. patent as being the personal computer encompassed

by the texts of pending independent claims 1 and 10. The Daly, et

al. patent, explaining operation of the digital voice processing

system 10 depicted in FIG. 1, in col. 4 at lines 11-17 describes

going "off hook" as follows.

> **The signal processor 36a will receive the signal that a**
> **telephone 22 is requesting service from an audio process**
> **48.** The signal will be sent to an application processor
> 38a. **The response to the request for service will be**
> **controlled by the application processor 38a which will**
> **direct the signal processor 36a to signal the audio**
> **processor [48] to go off hook.** (Emphasis supplied.)

Thus, **the preceding text excerpted from the Daly, et al. patent**

irrefutably establishes that the host computer 12 does not decode

line status and signaling information for the purpose of determin-

ing that a telephone line has gone "off hook." Because the Daly,

et al. patent discloses that the application processor 38a rather

than the host computer 12 determines that a telephone line has gone

"off hook," Applicants for a second time respectfully submit that

pending independent apparatus claims 1 and 10 traverse rejection

under 35 U.S.C. § 102(b) as being anticipated by Daly, et al.

patent because the reference fails to "teach **every aspect** of the

claimed invention either explicitly or impliedly."

Because as described in greater detail above the Daly, et al.

patent both:

   1.   either:

        a.   fails to disclose a USB hub for transmitting digi-

             tal audio data to a USB root hub; or

   b. fails to disclose a USB root hub for receiving

     digital audio data transmitted from the USB hub;

     and also

  2. fails to disclose a PC that executes software which

     determines the status of a telephone line including a

     telephone line "going off hook;"

Applicants respectfully submit that the cited reference fails to teach **every aspect** of pending independent apparatus claims 1 and 10 either explicitly or impliedly as required by MPEP § 706.02 V. Because the Daly, et al. patent fails to teach **every aspect** of pending independent claims 1 and 10, **Applicants respectfully submit that pending independent apparatus claims 1 and 10 traverse rejection under 35 U.S.C. § 102(b) as being anticipated by Daly, et al. patent**. Furthermore, because pending apparatus claims 2-3, 6-8 and 10-12 respectively depend either directly or indirectly from pending independent claims 1 and 10, **Applicants respectfully submit that claims 2-3, 6-8 and 10-12 also traverse rejection under 35 U.S.C. § 102(b) as being anticipated by Daly, et al. patent**.

Moreover, regarding apparatus claims 4 and 13, because those claims depend either directly or indirectly from pending independent claims 1 and 10, **Applicants respectfully submit that claims 4 and 13 traverse rejection for obviousness under 35 U.S.C. § 103(a)**

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based upon a combination of any other reference(s) with the Daly,

et al. patent.

Claim 23

Considering now only independent method claim 23, the steps of

the claimed method, inter alia, require a personal computer ("PC")

for:

1.   receiving the linearly coded digital audio data;

2.   continuously monitoring the received digital audio data:
     and

3.   decoding line status and signaling information embedded
     in the continuously monitor digital audio data to
     determine status of a telephone line including a tele-
     phone line "going off hook."

As stated above in connection with pending independent

apparatus claims 1 and 10, the July 16th Office Action identifies

a "host computer 12" depicted in FIG. 1 of the Daly, et al. patent

as being the personal computer of independent method claim 23. The

Daly, et al. patent, explaining operation of the digital voice

processing system 10 depicted in FIG. 1, in col. 4 at lines 11-17

describes going "off hook" as follows.

> **The signal processor 36a will receive the signal that a**
> **telephone 22 is requesting service from an audio process**
> **48.** The signal will be sent to an application processor
> **38a.** **The response to the request for service will be**

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> **controlled by the application processor 38a which will
> direct the signal processor 36a to signal the audio
> processor [48] to go off hook.** (Emphasis supplied.)

Thus, **the preceding text excerpted from the Daly, et al. patent
irrefutably establishes that the host computer 12 does not decode
line status and signaling information for the purpose of determin-
ing that a telephone line has gone "off hook.**" Because the Daly,
et al. patent discloses that the application processor 38a rather
than the host computer 12 determines that a telephone line has gone
"off hook," Applicants respectfully submit that pending independent
method claim 23 traverses rejection under 35 U.S.C. § 102(b) as
being anticipated by Daly, et al. patent because the reference
fails to "teach **every aspect** of the claimed invention either
explicitly or impliedly" as required by MPEP § 706.02 V. Because
the Daly, et al. patent fails to teach **every aspect** of pending
independent apparatus claim 23, **Applicants respectfully submit that
independent claim 23 traverses rejection under 35 U.S.C. § 102(b)
as being anticipated by Daly, et al. patent.**

**Claims 15-22 and 24-27
Traverse Rejection Under
35 U.S.C. § 103(a)**

Considering now independent apparatus claim 19, the July 16th
Office action on page 13 rejects that claim under 35 U.S.C.
§ 103(a) on the following basis.

As to claim 19, it is rejected for the same reason as stated in claims 1, 2 and 4; however, Daly does not explicitly teach converting the linearly coded digital audio data into μLaw compressed digital audio data. **Bodo '239 teaches** "in converting the conditioned analog signals into digital data, **each CODEC preferably applies μLaw compression to the conditioned analog signal**. The use of μLaw compression effectively amplifies weak analog signals and attenuates strong analog signals thus reducing the volume range present in the compressed digital data generated by the CODEC from the conditioned analog signal" (col. 8, lines 25-33). As appreciated by the ordinary skilled artisan, μLaw is an algorithm to reduce the dynamic range of an audio signal.

Therefore, **it would have been obvious to the ordinary skilled artisan at the time of the invention was made to incorporate teaching of Bodo '239 into the teaching of Daly for the purpose of allowing "the computer program, after the computer program's execution stores the μLaw compressed digital data into the RAM, to then records the μLaw compressed digital data into a buffer provided by a read-write direct access storage device"**, (col. 8, lines 59-62). (Emphasis supplied.)

The preceding excerpt from the July 16th Office Action irrefutably admits that the Bodo, et al. patent discloses generating μLaw compressed digital data only in a CODEC 482 depicted in that patent's FIG. 5.

Furthermore, for reasons established in greater detail below the Daly, et al. patent discloses that the digital voice processing system 10 performs voice data compression in the signal processors 36a . . . 36d included in the voice processing card 14. Specifically, the Daly, et al. patent discloses that:

[e]ach application processor 38a, 38b[8] is in communica-
tion with and controls a pair of signal processors 36a
and 36b and 36c and 36d, respectively, which may be a TMS
320C25 processor from Texas Instruments.

All the signal processors 36a-36d are in communica-
tion with a time division multiplexer (TDM) chip 44 which
is in communication with the bus 16.

    *   *   *

The signal processors 36a-36d perform voice compression
and expansion, depending upon the direction of the data
stream, tone detection, voice activated operation, VOX,
voice operated recording, automatic gain control, control
information decoding and telephone call processing.[9]

    *   *   *

Data is then received by a signal processor 36 where
processing such as speech compression and expansion, call
programming, automatic gain control, dual tone multi-
frequency extraction, and voice activated operations
takes place. (Emphasis supplied.)

United States Patent no. 5,457,782 entitled "Digital Signal

Processing Circuit Board Having Use for Voice Processing System"

which issued on a patent application that was filed concurrently

with the patent application that issued as the Daly, et al. patent,

and which the Daly, et al. patent in col. 2 at l. 38 incorporates

by reference ("the '782 patent"), beginning in col. 2, l. 59

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[8]   The application processors 38a, 38b run the application
    processing and database management. (Col. 2, ll. 52-53)

    The application processor 38 performs high level applica-
    tion such as dictation, transcription, voice mail, voice
    response, medical records, and the like. Each applica-
    tion processor 38a, 38b can run any of the different
    types of application processing and can run two applica-
    tions of the same type simultaneously. (Col. 4, ll.
    29-34)

[9]   See the Daly, et al. patent col. 2, l. 53 - col. 3, l. 2.

through col. 4, l. 31 provides the additional information about the application processors 38a and 38b, and the signal processors 36a . . . 36d.[10] The following extensive excerpt from the '782 patent confirms information appearing in the preceding brief excerpt from the Daly, et al. patent, i.e. that the signal processors 36a . . . 36d perform voice compression and expansion, depending upon the direction of the data stream, tone detection, voice activated operation, VOX, voice operated recording, automatic gain control, control information decoding and telephone call processing.

> The processors 38a, 38b run the application programming and database management. The application processors 38a, 38b are in communication with one another through a register 43. Each processor 38a, 38b is in communication with and controls a pair of signal processors 36a and 36b and 36c and 36d, respectively, which may be TMS 320C25 processors from Texas Instruments.
>
>   *   *   *
>
> **The processors 36a-36d perform digital signal processing such as decoding control information, telephone processing and tone generation, and speech compression and expansion depending upon the direction of the data.**
>
>   There are four static RAMs 66a-66d back in communication with the signal processors 36a-36d, respectively. Each SRAM 66 is loaded by the processors 38a and 38b. The SRAMs 66 load the signal processors 36 with routine diagnostics, application routines and also provide data space for the signal processors.
>
>   *   *   *

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[10]   Note that the '782 patent, FIG. 1 of which appears identical to FIG. 2 of the Daly, et al. patent, uses the same reference numbers as those used in the Daly, et al. patent for various block diagram elements including specifically the application processors 38a, 38b, and the signal processors 36a . . . 36d as the Daly, et al. patent.

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The processors 38a, 38b are configured such that each one controls two signal processor 36a-36d.

        *   *   *

The processors 38a, 38b have the responsibility for running the application programming, board management, database management and similar functions.

        *   *   *

Each processor 38a, 38b interfaces to its DRAM 41a, 41b, respectively, through an interface 40, 40b which provides an interface through a bus 16 to the host computer 12.

        *   *   *

The Static RAMs 66a-66d 109 serve as instruction area and data area for the signal processors 36a-36d and the communications path between the applications processors 38a, 38b and the signal processors 36a-36d. There are no storage elements in any of the processors 36, 38 other than the SRAMs 66a-66d.

        *   *   *

In operation, when a call is made on one of the telephones 22a, it is received by the analogue interface 50 of one of the audio cards 18a.

        *   *   *

The analogue interface 50 is a loop start type of interface and handles all telephone communications on a first come, first call basis. The analogue interface 50 converts incoming analogue signals to digital. A digital signal is sent over the bus 16 to the TDM chip 44. An available digital signal processor 36a-36d will monitor the status of the audio cards 18a-18n and when one of the audio cards 18 is activated, this will be determined by the signal processor 36a. Upon such activation being determined, the signal processor 36a will communicate such activity to an application processor 38a which will then control the signal processor to issue a command to the audio card, as for example, to go off hook. **The audio card will then forward the incoming data over the bus 16 to the signal processor 36a where processing such as speech compression takes place**. The data is forwarded to an application processor 38a where telephone processing, dictation, transcription, voice mail, voice response, medical records, applications and the like, takes place under control of the host processor 12 and designates memory locations to be occupied and acts as a traffic cop for data to and from the SRAMs of the TDM chip 44.

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     *   *   *

Subsequent to the speech processing, data is then forwarded to the host computer 12 over the bus 32 by way of a PC interface 40a and it is subsequently forwarded to the processor 24.   (Emphasis supplied.)

Concerning the host computer 12, which the July 16th Office Action identifies as the PC of independent apparatus claim 19, the Daly, et al. patent discloses that:

1.   during initialization, the host computer 12 supplies operating code to RAMs 42a and 42b of the voice processing card 14;[11]

2.   controls data traffic;[12]

3.   stores voice data in a RAM 42a until the RAM's capacity is exceeded;[13]

4.   after voice data exceeds the RAM's capacity, transmits the voice data to a disk storage 26 for subsequent retrieval;[14]

5.   acts as a manager for voice data going into the disk storage 26;[12] and

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[11]   See the Daly, et al. patent col. 2, ll. 43-46.

[12]   See the Daly, et al. patent col. 4, l. 39.

[13]   See the Daly, et al. patent col. 4, ll. 40-41.

[14]   See the Daly, et al. patent col. 4, ll. 41-42.

[12]   See the Daly, et al. patent col. 4, ll. 43-44.

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    6.   controls control specific operations of the system 10

such as:

    a.   systems diagnostics;

    b.   voice file management; and

    c.   memory location assignments.[13]

The preceding summary of the operations performed by the host computer 12 including its host processor 24 omit entirely any signal processing operation such as compression of audio signals or digitized audio data. In fact, **the digital voice processing system 10 disclosed in the Daly, et al. patent interposes an entire processor, i.e. the application processors 38a and 38b, between its host computer 12 and the signal processors 36a . . . 36d where "speech compression takes place."**

Because the Bodo, et al. patent discloses that μLaw compression occurs in the CODEC 482 and the Daly, et al. patent discloses that "speech compression takes place" in the signal processors 36a . . . 36d, Applicants respectfully submit that:

    1.   one of ordinary skill in the art desiring to add μLaw compression to the digital voice processing system 10 disclosed in the Daly, et al. patent **would add** that function to the speech processing operations already performed by the signal processors 36a . . . 36d; and

---

[13]   See the Daly, et al. patent col. 4, ll. 44-46.

2. one of ordinary skill in the art desiring to add µLaw
    compression to the digital voice processing system 10
    disclosed in the Daly, et al. patent **would not consider**
    adding that entirely new, additional and markedly differ-
    ent function to the six (6) operations listed above
    performed by the host computer 12 which the July 16th
    Office Action identifies as the PC of independent
    apparatus claim 19.

From a slightly different perspective, **the July 16th Office**
Action's assignment of µLaw compression to the host computer 12 of
the Daly, et al. patent's digital voice processing system 10
separates µLaw compression as remotely as physically possible
within the digital voice processing system 10 from the signal
processors 36a . . . 36d of that reference's voice processing
card 14 which perform the reference's voice data compression.
Applicants respectfully submit that it is unobvious to assign µLaw
compression to a location that is so far removed from the site of
voice data compression, i.e. the signal processors 36a . . . 36d
of that reference's voice processing card 14, rather than in the
signal processors 36a . . . 36d. Thus, **the pending patent**
application provides the only disclosure of the radically innova-
tive concept that speech compression, including µLaw compression,
can be advantageously performed in the PC of a digital logger system.

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Therefore, Applicants respectfully submit that the July 16th Office Action's rejection of pending independent apparatus claim 19 for obviousness under 35 U.S.C. § 103(a) based upon a combination of disclosures artfully chosen from the Daly, et al. and Bodo, et al. patents relies upon an impermissible hindsight reconstruction of the invention encompassed by pending independent claim 19. It is **impermissible** to first ascertain factually what the inventor did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct the invention from such prior art. Panduit Corp. v. Dennison Manufacturing Co., 774 F.2d 1082, 1092, 227 USPQ 337, 343 (Fed. Cir. 1985).

For the preceding reasons, Applicants respectfully submit that pending independent apparatus claim 19 traverses rejection under 35 U.S.C. § 103(a) for obviousness based upon a combination of the Daly, et al. and Bodo, et al. patents, and requests that the rejection of claim 19 appearing in the July 16th Office Action be withdrawn.

Claims 15-18

Considering now pending apparatus claims 15-18, those claims respectively depend either directly or indirectly from pending independent claim 10. The rejection of dependent claims 15-18 for

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obviousness under 35 U.S.C. § 103(a) appearing in the July 16th Office Action relies upon a combination of the Daly, et al. patent with another reference. Because, for the reasons set forth above pending independent claim 10 traverses rejection under 35 U.S.C. § 102(b) based upon the Daly, et al. patent, and because claims 15-18 depend respectively either directly or indirectly from pending independent claim 10, **Applicants respectfully submit that a combination of the Daly, et al. patent with any other reference cannot render dependent claims 15-18 obvious under 35 U.S.C. § 103(a)**. For the preceding reason, Applicants respectfully submit that pending dependent apparatus claims 15-18 traverse rejection under 35 U.S.C. § 103(a) for obviousness based upon a combination of the Daly, et al. patent with any other reference, and requests that the rejection of those claims appearing in the July 16th Office Action be withdrawn.

Claims 20-22

Considering now pending apparatus claims 20-22, those claims depend either directly or indirectly from pending independent apparatus claim 19. The rejection of dependent claims 20-22 for obviousness under 35 U.S.C. § 103(a) appearing in the July 16th Office Action relies upon a combination of the Daly, et al. patent with the Bodo, et al. patent. Because, for the reasons set forth

above pending independent claim 19 traverses rejection under 35 U.S.C. § 103(a) based upon the Daly, et al. and Bodo, et al. patents, and because claims 20-22 depend respectively either directly or indirectly from pending independent claim 19, **Applicants respectfully submit that a combination of the Daly, et al. patent with the Bodo, et al. patent cannot render dependent claims 20-22 obvious under 35 U.S.C. § 103(a)**. For the preceding reason, Applicants respectfully submit that pending dependent apparatus claims 20-22 traverse rejection under 35 U.S.C. § 103(a) for obviousness based upon a combination of the Daly, et al. patent with the Bodo, et al. patent, and requests that the rejection of those claims appearing in the July 16th Office Action be withdrawn.

Claims 24-27

Considering now pending method claims 24-27, those claims respectively depend either directly or indirectly from pending independent claim 23. The rejection of dependent claims 24-27 for obviousness under 35 U.S.C. § 103(a) appearing in the July 16th Office Action relies upon a combination of the Daly, et al. patent with another reference. Because, for the reasons set forth above pending independent claim 23 traverses rejection under 35 U.S.C. § 102(b) based upon the Daly, et al. patent, and because claims 24-27 depend respectively either directly or indirectly from

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pending independent claim 23, **Applicants respectfully submit that a combination of the Daly, et al. patent with any other reference cannot render dependent claims 24-27 obvious under 35 U.S.C. § 103(a)**. For the preceding reason, Applicants respectfully submit that pending dependent apparatus claims 24-27 traverse rejection under 35 U.S.C. § 103(a) for obviousness based upon a combination of the Daly, et al. patent with any other reference, and requests that the rejection of those claims appearing in the July 16th Office Action be withdrawn.

**Claims 5 and 14 Traverse
Rejection Under
35 U.S.C. § 103(a)**

Pending apparatus claims 5 and 14 depend either directly or indirectly respectively from pending independent claims 1 and 10. The rejection of dependent claims 5 and 14 for obviousness under 35 U.S.C. § 103(a) appearing in the July 16th Office Action relies upon a combination of the Daly, et al. patent with another reference. Because, for the reasons set forth above pending independent claims 1 and 10 traverse rejection under 35 U.S.C. § 102(b) based upon the Daly, et al. patent, and because claims 5 and 14 depend either directly or indirectly respectively from pending independent claims 1 and 10, **Applicants respectfully submit that a combination of the Daly, et al. patent with any other**

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reference cannot render dependent claims 5 and 14 obvious under 35

U.S.C. § 103(a). For the preceding reason, Applicants respectfully submit that pending dependent apparatus claims 5 and 14 traverse rejection under 35 U.S.C. § 103(a) for obviousness based upon a combination of the Daly, et al. patent with any other reference, and requests that the rejection of those claims appearing in the July 16th Office Action be withdrawn.

Claim 9 Traverses
Rejection Under
35 U.S.C. § 103(a)

Pending apparatus claim 9 depends either directly or indirectly from pending independent claim 1. The rejection of dependent claim 9 for obviousness under 35 U.S.C. § 103(a) appearing in the July 16th Office Action relies upon a combination of the Daly, et al. patent with another reference. Because, for the reasons set forth above pending independent claim 1 traverses rejection under 35 U.S.C. § 102(b) based upon the Daly, et al. patent, and because claim 9 depends either directly or indirectly from pending independent claim 1, **Applicants respectfully submit that a combination of the Daly, et al. patent any other reference cannot render dependent claims 9 obvious under 35 U.S.C. § 103(a)**. For the preceding reason, Applicants respectfully submit that pending dependent apparatus claim 9 traverses rejection under 35 U.S.C.

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§ 103(a) for obviousness based upon a combination of the Daly, et al. patent with any other reference, and requests that the rejection of that claim appearing in the July 16th Office Action be withdrawn.

Conclusion

For the various different reasons explained in detail above, Applicants respectfully submit that the present patent application, as amended above, traverses all objections and claim rejections appearing in the July 16th Office Action. Summaries of the differing reasons why the present patent application traverses the July 16th Office Actions objections and claim rejections appear below.

Because, as demonstrated above, the present application discloses a digital logger system that includes a signal processor which reduces the signal processor's parts cost by 85%, Applicants respectfully submit that this **patent application's title** as originally filed is truly descriptive, and therefore that title traverses the objection thereto appearing in the July 16th Office Action.

Applicants respectfully submit that the amended **Abstract of the Disclosure** set forth above and on a separate sheet accompanying

this response traverses the objection thereto appearing in the July 16th Office Action.

Because the patent application as originally filed beginning on page 36 in line 17 describes a circuit for "electrically conditioning . . . received telecommunication signals" and depicts that circuit in FIG. 5, and because the USPC includes class and subclass 379/414 to which the USPTO has already assigned no fewer than one-hundred and ten (110) issued United States patents each of which discloses "telephonic communication" "transmission line conditioning," Applicants respectfully submit that claims 2, 5, 11, 14, 21 and 24 employ clearly defined terminology, and therefore those claims **traverse the rejection under 35 U.S.C. § 112, second paragraph,** appearing in the July 16th Office Action.

Applicants respectfully submit that claims 1-27 traverse rejection for **nonstatutory obviousness type double patenting** as alleged in the July 16th Office Action.

1.   Concerning claims 1-18, pending independent apparatus claims 1's and 10's USB hub claim element for transmitting digital audio data to a USB root hub is not the same as, equivalent to, or even suggested by "an optical-disk recorder that is coupled to said RAM and that is adapted for recording pre-mastered digital data onto optical recording media" element of independent claim 1 of the

Bodo, et al. patent. Therefore, at least for the preceding reason pending **independent claims 1 and 10 traverse the rejection for nonstatutory obviousness type double patenting** appearing in the July 16th Office action. Since at least for the preceding reason pending independent claims 1 and 10 traverse rejection for nonstatutory obviousness type double patenting, **claims 2-9 and 11-18**, which depend respectively from independent claims 1 and 10, **also traverse the rejection for nonstatutory obviousness type double patenting** appearing in the July 16th Office action.

2. Concerning claims 19-27, for reasons set forth in greater detail above Applicants respectfully submit that the July 16th Office Action fails on pages 4-6 to present a prima facie case for nonstatutory obviousness type double patenting of pending independent apparatus claim 19 because it fails to even consider at claim's text. Considering now pending independent method claim 23, Applicants respectfully submit that the Bodo, et al. patent's claim 1 element of "an input-signal conditioning-circuit for electronically conditioning an analog signal received by an input-channel of the pre-mastering, optical recorder thereby producing a

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conditioned analog signal adapted for conversion into digital data" is not the same as, equivalent to, or even suggests claim 23's method steps of:

a.   "concurrently and continuously receiving an audio telecommunication signal for at least one telephone call"; and/or

b.   "converting the received audio telecommunication signal into linearly coded digital audio data."

Therefore, at least for the preceding reasons pending **independent claims 19 and 23 traverse the rejection for nonstatutory obviousness type double patenting** appearing in the July 16th Office action. Since at least for the preceding reason pending independent claims 19 and 23 traverse rejection for nonstatutory obviousness type double patenting, **claims 20-22 and 24-27,** which depend respectively from independent claims 19 and 23, also **traverse the rejection for nonstatutory obviousness type double patenting** appearing in the July 16th Office action.

Applicants also respectfully submit that, contrary to the allegations appearing in the July 16th Office Action, **claims 1,**

2-3, 6-8, 10-12 and 23 traverse rejection under 35 U.S.C. § 102(b) as being anticipated by Daly, et al. patent.

1. Considering initially pending independent apparatus claims 1 and 10, the allegations appearing at the bottom of page 7 and the top of page 8 in the July 16th Office Action require the physically impossible condition of the Daly, et al. patent's bus interface 30:

   a. being both:

      i. the USB hub element respectively of claim 1 or 10; and

      ii. the USB root hub element respectively of claim 1 or 10; and

   b. requiring bus interface 30, **being both the USB hub and the USB root hub**, to both:

      i. transmit digital audio data to a USB root hub, i.e. **transmit digital audio data to itself;** and

      ii. receive digital audio data transmitted from the USB hub, i.e. **receive digital audio data from itself.**

   Furthermore, the allegation appearing at the top of page 8 in the July 16th Office Action:

a. identifies a "host computer 12" depicted in FIG. 1 of the Daly, et al. patent as being the personal computer encompassed by the texts of pending independent claims 1 and 10; and

b. alleges that the Daly, et al. patent's "host computer 12" determines telephone line status including going "off hook."

The text of the Daly, et al. patent in col. 4 at lines 11-17 expressly contradicts the preceding July 16th Office Action's allegation. For both of the preceding reason, Applicants respectfully submit that the Daly, et al. patent fails to teach **every aspect** of pending independent apparatus claims 1 and 10 either explicitly or impliedly as required by MPEP § 706.02 V. Because the Daly, et al. patent fails to teach **every aspect** of pending independent claims 1 and 10, **Applicants respectfully submit that independent apparatus claims 1 and 10 traverse rejection under 35 U.S.C. § 102(b) as being anticipated by Daly, et al. patent.** Furthermore, because pending apparatus claims 2-3, 6-8 and 10-12 respectively depend either directly or indirectly from pending independent claims 1 and 10, **Applicants respectfully submit that claims 2-3, 6-8 and 10-12 also traverse**

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rejection under 35 U.S.C. § 102(b) as being anticipated by Daly, et al. patent.

2. Considering now pending independent method claim 23, the July 16th Office Action alleges that the Daly, et al. patent's "host computer 12" determines telephone line status including going "off hook." Because as stated above in connection with pending independent apparatus claim 10 the Daly, et al. patent discloses that the application processor 38a rather than the host computer 12 determines that a telephone line has gone "off hook," Applicants respectfully submit that pending independent method claim 23 traverses rejection under 35 U.S.C. § 102(b) as being anticipated by Daly, et al. patent because the reference fails to "teach **every aspect** of the claimed invention either explicitly or impliedly" as required by MPEP § 706.02 V. Because the Daly, et al. patent fails to teach **every aspect** of pending independent apparatus claim 23, **Applicants respectfully submit that independent claim 23 traverses rejection under 35 U.S.C. § 102(b) as being anticipated by Daly, et al. patent.**

Applicants further respectfully submit that, contrary to the allegations appearing in the July 16th Office Action, **claims 15-22 and 24-27 traverse rejection under 35 U.S.C. § 103(a)** as being

obvious based upon a combination of disclosure appearing in the Daly, et al. and Bodo, et al. patents.

1. Considering pending independent apparatus claim 19, **the July 16th Office Action irrefutably admits that the Bodo, et al. patent discloses generating μLaw compressed digital data only in a CODEC 482** depicted in that patent's FIG. 5. **The Daly, et al. patent discloses that the digital voice processing system 10 performs voice compression and expansion in the signal processors 36a . . . 36d included in the voice processing card 14.** In rejecting independent apparatus claim 19, to satisfy an express limitation appearing in that claim the July 16th Office Action alleges it would be obvious to one of ordinary skill in the art seeking to equip the Daly, et al. patent's digital voice processing system 10 with μLaw digitized voice compression and expansion to perform μLaw compression in the host computer 12 which the July 16th Office Action identifies as being the PC element of pending independent apparatus claim 19. **Applicants respectfully submit that performing μLaw compression in the host computer 12 is non-obvious because:**

   a. none of the operations performed by the Daly, et al. patent's host computer includes any signal

processing operation such as compression of audio signals or digitized audio data;

b. one of ordinary skill in the art would not add an entirely new, additional and markedly different function, i.e. μLaw compression, to the six (6) operations that the Daly, et al patent describes as being performed by the host computer 12; and

c. one of ordinary skill in the art would therefore place μLaw compression, which the Bodo, et al. patent discloses as occurring in the CODEC 482, in the Daly, et al. patent's signal processors 36a . . . 36d of that reference's voice processing card 14 which are already dedicated to performing, inter alia, voice compression and expansion.

From a slightly different perspective, **the July 16th Office Action's unobvious assignment of μLaw compression to the host computer 12 of the Daly, et al. patent's digital voice processing system 10 separates μLaw compression as remotely as physically possible within the digital voice processing system 10 from the signal processors 36a . . . 36d of that reference's voice processing card 14 which are already dedicated to performing, inter alia, voice compression and expansion.**

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Because for the reasons set forth above performing μLaw compression in the host computer 12 is non-obvious, **Applicants respectfully submit that pending independent apparatus claim 19 traverses the rejection for obviousness under 35 U.S.C. § 103(a) based upon a combination of the Daly, et al. and Bodo, et al. patents as alleged in the July 16th Office Action.**

2. Considering now pending apparatus claims 15-18 that depend either directly or indirectly from pending apparatus independent claim 10, **Applicants respectfully submit that because claims 15-18 depend respectively either directly or indirectly from pending independent apparatus claim 10 which for the reasons set forth above traverses rejection under 35 U.S.C. § 102(b) based upon the Daly, et al. patent, a combination of the Daly, et al. patent with any other reference cannot render dependent claims 15-18 obvious under 35 U.S.C. § 103(a).** Accordingly, Applicants respectfully submit that pending dependent apparatus claims 15-18 traverse the rejection for obviousness under 35 U.S.C. § 103(a) based upon a combination of the Daly, et al. and Bodo, et al. patents as alleged in the July 16th Office Action.

3. Considering now pending apparatus claims 20-22 that depend either directly or indirectly from pending independent apparatus claim 19, **Applicants respectfully submit that because claims 20-22 depend respectively either directly or indirectly from pending independent claim 19 which for the reasons set forth above traverses rejection under 35 U.S.C. § 103(a) based upon the Daly, et al. and Bodo, et al. patents, a combination of the Daly, et al. patent with the Bodo, et al. patent cannot render dependent claims 20-22 obvious under 35 U.S.C. § 103(a).** Accordingly, Applicants respectfully submit that pending dependent apparatus claims 20-22 traverse the rejection for obviousness under 35 U.S.C. § 103(a) based upon a combination of the Daly, et al. and Bodo, et al. patents as alleged in the July 16th Office Action.

4. Considering now pending method claims 24-27 that depend either directly or indirectly from pending independent method claim 23, **Applicants respectfully submit that because claims 24-27 depend respectively either directly or indirectly from pending independent method claim 23 which for reasons set forth above traverses rejection under 35 U.S.C. § 102(b) based upon the Daly, et al. patent, a combination of the Daly, et al. patent with any**

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other reference cannot render dependent claims 24-27 obvious under 35 U.S.C. § 103(a). Accordingly, Applicants respectfully submit that pending dependent apparatus claims 24-27 traverse the rejection for obviousness under 35 U.S.C. § 103(a) based upon a combination of the Daly, et al. and Bodo, et al. patents as alleged in the July 16th Office Action.

Applicants also respectfully submit that, contrary to the allegations appearing in the July 16th Office Action, claims 5 and 14 traverse rejection under 35 U.S.C. § 103(a) as being obvious based upon a combination of disclosure appearing in the Daly, et al. and the Cioffi, et al. patents. Claims 5 and 14 depend either directly or indirectly respectively from pending independent claims 1 and 10 which for reasons set forth above traverse rejection under 35 U.S.C. § 102(b) based upon the Daly, et al. patent, a combination of the Daly, et al. patent with any other reference cannot render dependent claims 5 and 14 obvious under 35 U.S.C. § 103(a). Accordingly, Applicants respectfully submit that pending dependent apparatus claims 5 and 14 traverse the rejection for obviousness under 35 U.S.C. § 103(a) based upon a combination of the Daly, et al. and Cioffi, et al. patents as alleged in the July 16th Office Action.

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Applicants also respectfully submit that, contrary to the allegations appearing in the July 16th Office Action, **claim 9 traverses rejection under 35 U.S.C. § 103(a)** as being obvious based upon a combination of disclosure appearing in the Daly, et al. and the Luneau patents. **Claim 9 depends either directly or indirectly from pending independent claim 1 which for reasons set forth above traverses rejection under 35 U.S.C. § 102(b) based upon the Daly, et al. patent, a combination of the Daly, et al. patent with any other reference cannot render dependent claim 9 obvious under 35 U.S.C. § 103(a).** Accordingly, Applicants respectfully submit that pending dependent apparatus claim 9 traverses the rejection for obviousness under 35 U.S.C. § 103(a) based upon a combination of the Daly, et al. and Luneau patents as alleged in the July 16th Office Action.

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For the preceding reasons, the Applicants respectfully request favorable reconsideration of the present patent application, withdrawal of the various objections and claim rejections appearing in the July 16th Office Action, and prompt allowance of the patent application's pending claims 1-27 as those claims appear in the preceding listing of claims.

Respectfully submitted

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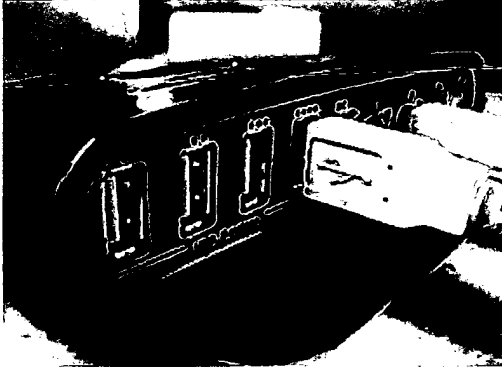Kings Beach, CA 96143-2926

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USB hub

From Wikipedia, the free encyclopedia

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A 4 port USB hub

A USB hub is a device that allows many USB devices to be connected to a single USB port on the host computer or another hub.
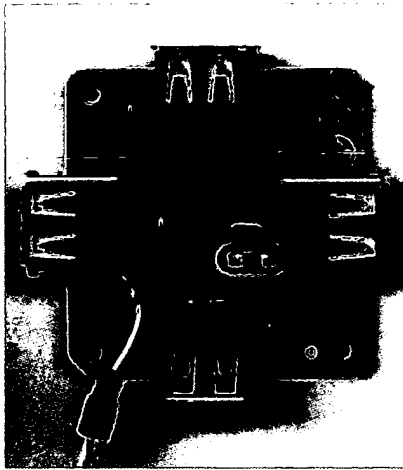
USB hubs are often built into equipment, normally keyboards, or monitors or more rarely printers. Separate USB hubs come in a wide variety of form factors from boxes that look similar to a network hub to small designs intended to be plugged directly into the USB port on a computer (that is, without a connecting cable).

Contents

[hide]

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[edit] Power

A USB hub with the plastic cover removed

A **bus-powered hub** is a hub that draws all its power from the host computer's USB interface. It does not need a separate power connection. However, many devices require more power than this method can provide, and will not work in this type of hub. USB current (related to power) is allocated in units of 100 mA up to a maximum total of 500 mA per port. Therefore a compliant bus powered hub can have no more than four downstream ports and cannot offer more than four 100 mA units of current in total to downstream devices (since one unit is needed for the hub itself). If more units of current are required by a device than can be supplied by the port it is plugged into, the operating system usually reports this to the user.

In contrast a **self-powered hub** is one that takes its power from an external power supply unit and can therefore provide full power (up to 500mA) to every port. Many hubs can operate as either bus powered or self powered hubs.

However, there are many non-compliant hubs on the market which announce themselves to the host as self-powered despite really being bus-powered. Equally there are plenty of non-compliant devices that use more than 100 mA without announcing this fact (or indeed sometimes without identifying themselves as USB devices at all). These hubs and devices do allow more flexibility in the use of power (in particular many devices use far less than 100 mA and many USB ports can supply more than 500 mA

before going into overload shut-off) but they are likely to make power problems harder to diagnose.[*original research?*]

Some powered hubs do not supply enough power to support a 500mA load on every port. For example, many 7 port hubs come with a 1A power adapter, when in fact seven ports could draw a maximum of 7 x 0.5 = 3.5A, plus power for the hub itself. The assumption is that the user will most likely connect many low power devices and only one or two requiring a full 500mA.

[edit] Speed

To allow high-speed devices to operate in their fastest mode all hubs between the devices and the computer must be high speed. High-speed devices should fall back to full-speed when plugged in to a full-speed hub (or connected to an older full-speed computer port). While high-speed hubs support all device speeds, low and full-speed traffic is combined and segregated from high-speed traffic through a **transaction translator**. Each transaction translator segregates lower speed traffic into its own pool, essentially creating a virtual full-speed bus. Some designs use a single transaction translator, while other designs have multiple translators. Having multiple translators is only a significant benefit when connecting multiple high-bandwidth full-speed devices.[1] It is an important consideration that in common language (and often product marketing) USB 2.0 is used as synonymous with high-speed. However, because the USB 2.0 specification, which introduced high-speed, incorporates and supersedes the USB 1.1 specification, any compliant full-speed or low-speed device is still a USB 2.0 device. Thus, not all USB 2.0 hubs operate at high-speed.

[edit] Physical layout

A USB network with many devices requires one or more hubs connected to each other. USB hubs can extend a USB network a maximum of five times. The USB specification requires that bus-powered hubs may not be connected in series to other bus-powered hubs.

USB ports on computer housings are usually closely spaced, so that plugging devices into one port may block an adjacent port. This problem is shared by some, but not all, external USB hubs. Star-shaped hubs with each port pointing in a different direction, such as pictured top right, avoid this problem. Aside from practical layouts, novelty USB hubs have also been produced, such as one shaped like the TARDIS, a fictional time-travelling space ship from the BBC science fiction series *Doctor Who*, or another shaped like a nuclear missile launch console complete with a big red button (which shuts down the PC).
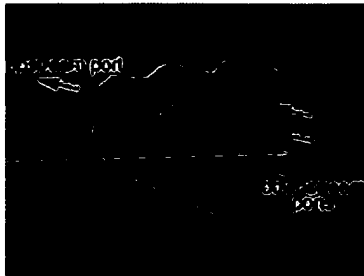
Laptop computers may come with many USB ports built in, but a USB hub can consolidate several everyday devices (like a mouse and a printer) into a single port for quick attachment and removal.

Also available are so-called "sharing hubs", which effectively are the reverse of a USB hub, allowing several PCs to access (usually) a single peripheral. They can either be manual, effectively a simple switch-box, or automatic, incorporating a mechanism that recognises which PC wishes to use the peripheral and switches accordingly. They cannot grant both PCs access at once. Some models, however, have the ability to control multiple peripherals separately (e.g. 2 PCs and 4 peripherals, assigning access separately). Only the simpler switches tend to be automatic, and this feature generally places them at a higher price point too.

[edit] Length limitations

USB cable are limited to 5m. A hub can be used as an active USB repeater to extend cable length for up to 5 lengths. "Active" cables (specialized connector-embedded one-port hubs) perform the same function, but since they are strictly bus-powered, externally powered (non-bus-powered) USB hubs would likely be required for some of the segments.

[edit] Protocol

A USB hub; upstream and downstream ports shown

Each hub has exactly one upstream port and a number of downstream ports. The upstream port connects the hub (directly or through other hubs) to the host. Other hubs or devices can be attached to the downstream ports.

During normal transmission, hubs are essentially transparent: data received from its upstream port is broadcast to all devices attached to its downstream ports; data received from a downstream port is generally forwarded to the upstream port only. This way, what is sent by the host is received by all hubs and devices, and what sent by a device is received by the host but not by the other devices (an exception is resume signalling).

Hubs are not transparent when dealing with changes in the status of downstream ports, such as insertion or removal of devices. In particular, if a downstream port of a hub changes status, this change is dealt with an interaction between the host and this hub; the hubs between them act as transparent in this case.

To this aim, each hub has a single interrupt endpoint "1 IN" (endpoint address 1, hub-to-host direction) used to signal changes in the status of the downstream ports. When a device is attached, the hub detects the device pull-up resistor on either D+ or D- and signals the insertion to the host via this interrupt endpoint. When the host polls this interrupt endpoint, it is informed of the presence of the new device. It then instructs the hub (via the default control pipe) to reset the port where the new device is connected. This reset makes the new device assuming address 0, and the host can then interact

EXHIBIT A

with it directly; this interaction will result in the assignment of a new (non-zero) address to the device.[2][3]

[edit] Electronic design

Most USB hubs use one or more integrated controller ICs, of which several designs are available from various manufacturers. Most support a four port hub system, but hubs using seven-port hub controllers are also available.[4] Additional features on some hub controllers include control of port LEDs (sometimes automatic, sometimes under control of the host PC) and PS/2 to USB conversion for mice and keyboards.

[edit] References

1. ^ USB Technology: Multi-TT Hub Goes Head-to-Head With Single-TT *Tom's Hardware UK and Ireland* URL last accessed on August 24 2006.
2. ^ USB 2.0 specification
3. ^ USB in a nutshell PDF (175 KiB)
4. ^ NEC μPD720113 USB Hub Controller